LISTING OF CLAIMS

1-2. (canceled)

10 3. (currently amended) A method as claimed in claim ~~19~~ 8 ~~claim 1~~, wherein the applying step comprises the step of multiplying the or more subchannel signal by the corresponding gain factor.

11 4. (currently amended) A method as claimed in claim ~~19~~ 8 ~~claim 1~~, and further comprising the step of modulating the or each subchannel signal onto a corresponding carrier signal.

12 5. (original) A method as claimed in claim ~~4~~, 11 and wherein the applying step is performed prior to the modulating step.

6-7. (canceled)

1 8. (currently amended) A data communications network comprising:

a transmitting node;

a receiving node;

a communication link for communicating an information signal between the transmitting node and the receiving node, the communication channel having one or more subchannels;

the receiving node having a receive signal processor for determining for the or each subchannel, in dependence on the signal to noise ratio of the channel and a target transmission rate for the information signal at the transmitting node to effect transmission of the information signal to the receiving node with minimum transmission power and for communicating the gain factors for the or each subchannel signal from the receiving node to the transmitting node; ~~and,~~

the trasnmitting node having a transmit signal processor for applying the gain factors to the corresponding subchannel signal at the transmitting node, and transmitting the information signal to the receiving node; and,

the receiving node, for each subchannel of each channel, partitioning the subchannels of the other channels based on subchannel characteristics into at least one high crosstalk subchannel and at least one low crosstalk subchannel, and selectively decoding the subchannel signal based on the subchannel characteristics in dependence on the signal on the at least one high crosstalk subchannel.

2 ~~9~~. (original) A network as claimed in claim ~~8~~ 1, wherein the receiver signal processor determines the gain by simulated annealing.

3 ~~10~~. (original) A network as claimed in claim ~~8~~ 1, wherein the transmit signal processor comprises a multiplier for multiplying the or each sub channel signal by the corresponding gain factor.

4 ~~11~~. (original) A network as claimed in claim ~~8~~ 1, wherein the transmit signal processor comprises a modulator for modulating the or each subchannel signal onto a corresponding carrier signal.

5 ~~12~~. (original) A network as claimed in claim ~~11~~ 4, wherein the transmit signal processor applies the gain factor to the corresponding sub channel signal upstream of the modulator.

6 ~~13~~. (original) A network as claimed in claim ~~8~~ 1, wherein the communications channel comprises a plurality of subchannels.

7 ~~14~~. (currently amended) A receiving node for a data communications network comprising a communication channel for communicating an information signal between a transmitting node and the receiving node, the communication channel having one or subchannels, the receiving node having a receive signal processor for determining for the or each subchannel, in dependence on the signal to noise ratio of the channel and a target transmission rate for the information signal, a gain factor to be applied to the subchannel signal at the transmitting node to effect transmission of the information signal to the receiving node with minimum transmission power, and for communicating the gain factor for the or each sub channel signal to the transmitting node and, for each subchannel of each channel, partitioning the subchannels of the other channels based on subchannel characteristics into at least one high crosstalk subchannel and at least one low crosstalk subchannel, and selectively processing decoding the subchannel signal based on the subchannel characteristics on the at least one high crosstalk subchannel.

15-18. (canceled)

§ ~~19~~. (previously presented) A method for communicating information signals via respective channels, each having at least one subchannel, of a multichannel communications link between a transmitting node and a receiving node of a data communications network, the method comprising the steps of:

at the receiving node, determining for each sub channel of each channel, in dependence on the signal to noise ratio of the channel and a target transmission rate for the information signal over that channel, a gain factor to be applied at the subchannel signal at the transmitting node to effect transmission of the information signal to the receiving node with minimum transmission power;

communicating the gain factors for each subchannel signal from the receiving node to the transmitting node;

applying the gain factors to the corresponding subchannel signals at the transmitting node; and,

at the receiving node, for each subchannel of each channel, partitioning the subchannels of the other channels into at least one high crosstalk subchannel and at least one low crosstalk subchannel, and decoding the subchannel signal in dependence on the signal on the at least one high crosstalk subchannel.

9 20. (original) A method as claimed in claim ~~19~~ 8, wherein the determining step comprises the step of simulated annealing.

13 ~~21~~. (currently amended) A computer program product for optimizing transmission power for communication of an information signal via one or more subchannels of a communications channel between a transmitting node and a receiving node of a data communications network, the computer program product comprising a machine readable storage medium storing computer program code which, when loaded in a programmable signal processor in the receiving node, configures the processor to perform the steps of:

determining for the or each subchannel, in dependence on the signal to noise ratio of the channel and a target transmission rate for the information signal, a gain factor to be applied to the sub channel signal at the transmitting node to effect transmission of the information signal to the receiving node with minimum transmission power; ~~and,~~

communicating the gain factor for the or each subchannel signal from the receiving node to the transmitting node; and

partitioning the subchannels of the other channels based on subchannel characteristics into at least one high crosstalk subchannel and at least one low crosstalk

subchannel, and selectively decoding the subchannel signal based on the subchannel characteristics in dependence on the signal on the at least one high crosstalk subchannel.

22. (canceled)